NOV 21 '86

I28.112:984

MINERAL INDUSTRY SURVEYS

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON, D.C. 20241

Donald Paul Hodel, Secretary

Robert C. Horton, Director

For information call:
Charles L. Davis, (202) 634-1190
Jessie G. Austin (data), (202) 634-1190

Explosives, Annual

APPARENT CONSUMPTION OF INDUSTRIAL EXPLOSIVES AND BLASTING AGENTS IN THE UNITED STATES, 1984

Apparent consumption of explosives and blasting agents in the United States increased 17% to 4.4 billion pounds, according to the Bureau of Mines, U.S. Department of the Interior. Apparent consumption is measured by sales reported by manufacturers.

Permissibles consumption increased 5% and other high explosives consumption remained about the same compared with that of 1983.

All principal consuming industries except metal mining used larger quantities of explosives and blasting agents in 1984 than in 1983. About 63% of the total weight was utilized in the mining of coal. Nearly all permissibles and 67% of ammonium nitrate-fuel oil blasting agents and unprocessed ammonium nitrate were consumed in coal mining. Other high explosives were used primarily in quarrying and nonmetal mining (30%) and construction (24%). The major uses of water gels and slurries were in coal mining (30%) and quarrying and nonmetal mining (31%). Most of the new class of blasting agent, Higher Strength Blasting Agents, also was used in coal mining (69%) and quarrying and nonmetal mining (19%).

Seven States collectively consumed 60% of all explosives and blasting agents used in the United States in 1984. These were, in decreasing order of consumption, Kentucky, Pennsylvania, West Virginia, Wyoming, Alabama, Ohio, and Montana.

Prepared in the Division of Industrial Minerals, July 26, 1985.

COMPLETED

BEST COPY AVAILABLE

Classification of Industrial Explosives and Blasting Agents

"Apparent consumption" of explosives and blasting agents, as used in this report, means sales reported to the Institute of Makers of Explosives (IME) by IME members and provided to the Bureau of Mines on a proprietary basis, plus sales by nonmember manufacturers reported directly to the Bureau on Form 6-1439-A. Classification of explosives and blasting agents by type and use appears as reported by the manufacturers. Sales of explosives and blasting agents imported by nonmanufacturers are not included, but may be locally important. Some quantities are published in such a way as to avoid disclosing company proprietary data.

The principal distinction between explosives and blasting agents is related to their sensitivity to initiation. Explosives are cap-sensitive but blasting agents are not, and therefore require a primer. Only "high" explosives are currently reported. "Low" explosives, which burn very rapidly but do not detonate, include principally black powder and propellants. Black powder has not been reported in industrial use since 1971. Both explosives and blasting agents vary widely in composition, although most blasting agents are essentially mixtures of ammonium nitrate plus a fuel.

Water gels and slurries may be either explosives or blasting agents, but for convenience are classified separately in a recognizable category.

The six product classifications used in this report are the same as those adopted by IME. These are as follows:

1. Permissibles.--Grades of high explosives approved by brand name by the U.S. Bureau of Mines or the Mine Safety and Health Administration for use, in a prescribed manner, in underground coal mines, including water gels and slurries approved as permissibles.

2. Other High Explosives.--All high explosives except

   (a) permissibles and

   (b) any water gels or slurries that would otherwise be classified as high explosives.

Included in the "Other High Explosives" classification are all formulations packaged in metal containers.

3. Packaged and Bulk Water Gels, Slurries, and Emulsions.--All water gels, slurries, and emulsions, packaged or in bulk, made by addition of more than 5% water to high explosives or blasting agents, except those approved as permissibles.

4. Ammonium Nitrate-Fuel Oil Blasting Agents.--Without regard to packaging or container, and having a density less than 1.0 gram per cubic centimeter (cc).

5. Unprocessed Ammonium Nitrate.--Prilled or grained ammonium nitrate for use in blasting agents.

6. Higher Strength Blasting Agents.--All ammonium nitrate-fuel oil mixtures having a density greater than 1.0 gram per cc, or mixtures sensitized by fuels other than fuel oil (e.g., nitro compounds, aluminum, emulsions).

Companies covered by this report, including IME members, are as follows:

American Cyanamid Company--New Castle, Pennsylvania
Apache Powder Company--Benson, Arizona
Atlas Powder Company--Dallas, Texas
Austin Powder Company--Cleveland, Ohio
C-I-L Inc.--Willowdale, Ontario, Canada
Columbia Nitrogen Corp.--Augusta, Georgia
E. I. du Pont de Nemours & Co., Inc.--Wilmington, Delaware
Ensign Bickford Company--Simsbury, Connecticut
Goex Inc.--Cleburne, Texas
W.R. Grace & Co. ACG--Memphis, Tennessee
Hawkeye Chemical Company--Clinton, Iowa
Hercules, Inc.--Wilmington, Delaware
Independent Explosives Company of Pennsylvania--Scranton, Pennsylvania
Ireco Incorporated--Salt Lake City, Utah
Kaiser Aluminum & Chemical Corp.--Savannah, Georgia
Mining Services International--Salt Lake City, Utah
Nitrochem Energy Corp.--Allentown, Pennsylvania
Sierra Chemical Company--Reno, Nevada
Southern Explosives Corporation--Glasgow, Kentucky
Thermex Energy Corporation--Dallas, Texas
Trojan Corp.--Salt Lake City, Utah
Union Oil Company of California--Los Angeles, California
USS Agri-Chemicals--Atlanta, Georgia

BEST COPY AVAILABLE

TABLE 1.--Salient statistics of industrial explosives and blasting agents sold for consumption in the United States, 1983-84
(Thousand pounds)

Class	1983	1984
Permissibles	37,198	39,238
Other high explosives 1/	98,715	98,246
Water gels, slurries, and emulsions 1/	276,098	334,758
Ammonium nitrate-fuel oil blasting agents 1/	464,402	543,654
Unprocessed ammonium nitrate 2/	2,786,398	3,277,681
Higher strength blasting agents	67,441	1/63,281
Total	3,730,252	4,356,858

1/Some quantities of this class of explosive are included with "Unprocessed ammonium nitrate" to avoid disclosing company proprietary data.

2/Includes some quantities of other high explosives, water gels, slurries, and emulsions, ammonium nitrate-fuel oil blasting agents, and higher strength blasting agents (1984).

TABLE 2.--Industrial explosives and blasting agents sold for consumption in the United States, by class and use, 1983-84
(Thousand pounds)

Class	Coal mining 1/		Metal mining 1/		Quarrying and nonmetal mining 1/		Construction work 1/		All other purposes 2/		Total	
	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984
Permissibles	35,181	37,721	311	195	657	345	937	902	112	75	37,198	39,238
Other high explosives 3/	17,964	20,357	8,861	7,771	31,833	29,658	22,706	23,189	17,351	17,271	98,715	98,246
Water gels and slurries 3/	94,578	99,340	49,699	78,959	94,261	102,849	33,292	42,464	4,268	11,146	276,098	334,758
Ammonium nitrate-fuel oil blasting agents 3/	308,714	362,675	15,437	24,860	83,402	93,295	54,916	59,729	1,933	3,095	464,402	543,654
Unprocessed ammonium nitrate 4/	1,625,903	2,195,216	404,584	323,817	242,061	241,403	176,843	170,115	337,007	347,130	2,786,398	3,277,681
Higher strength blasting agents	43,923	43,350	2,237	1,615	15,496	12,323	5,301	5,874	484	119	67,441	3/63,281
Total	2,126,263	2,758,659	481,129	437,217	467,710	479,873	293,995	302,273	361,155	378,836	3,730,252	4,356,858

1/Some quantities of this use are included with "All other purposes" to avoid disclosing company proprietary data.
2/Includes some quantities from coal mining, metal mining, quarrying and nonmetal mining, and construction work.
3/Some quantities of this class of explosive are included with "Unprocessed ammonium nitrate" to avoid disclosing company proprietary data.
4/Includes some quantities of other high explosives, water gels and slurries, ammonium nitrate-fuel oil blasting agents, and higher strength blasting agents (1984).

BEST COPY AVAILABLE

TABLE 3. Industrial explosives and blasting agents sold for consumption in the United States, by State and use, 1984
(Thousand pounds)

State	Use					
	Coal mining	Metal mining	Quarrying and nonmetal mining	Construction work	All other purposes	Total
Alabama	244,737	1	2,757	17,792	1,113	266,400
Alaska	9,835	--	1,576	7,253	507	19,171
Arizona	25,628	74,008	1,055	467	2,802	103,960
Arkansas	33	6	6,956	4,497	105	11,597
California	7	2,877	9,791	21,342	138	34,155
Colorado	48,643	20,274	7,564	5,277	947	82,705
Connecticut	--	--	6,064	2,496	316	8,876
Delaware	--	--	--	5	1	6
District of Columbia 1/	--	--	--	--	--	--
Florida	344	--	21,809	9,452	70	31,675
Georgia	--	--	17,311	2,559	766	20,636
Hawaii	--	--	554	279	--	833
Idaho	4,362	38,866	8,672	2,600	1	54,501
Illinois	31,411	23	87,199	14,518	7,993	141,144
Indiana	144,785	--	7,744	11,851	679	165,059
Iowa	11,523	--	16,307	223	9,311	37,364
Kansas	114	--	12,333	1,109	1,579	15,135
Kentucky	850,657	--	46,453	42,535	48,586	998,231
Louisiana	--	--	433	200	2,471	3,104
Maine	--	--	783	1,461	--	2,244
Maryland	645	--	5,099	1,121	224	7,089
Massachusetts	--	--	5,848	1,649	235	7,732
Michigan	--	24,728	8,383	342	6,872	40,325
Minnesota	3	67,119	2,573	383	3,228	73,306
Mississippi	--	--	65	88	1,816	1,969
Missouri	20,149	2,819	17,376	9,088	2,946	52,378
Montana	91,130	67,474	2,639	2,307	3,614	167,164
Nebraska	--	--	--	1,947	--	1,947
Nevada	5	57,087	9,382	549	202	67,225
New Hampshire	--	--	1,943	1,926	--	3,869
New Jersey	--	24	3,401	654	218	4,297
New Mexico	56,104	30,211	502	2,161	820	89,798
New York	35	581	8,449	4,742	676	14,483
North Carolina	8,789	--	40,295	3,450	--	52,534
North Dakota	--	--	--	--	322	322
Ohio	166,128	--	25,851	5,508	32,326	229,813
Oklahoma	913	5,483	13,552	30,411	1,345	51,704
Oregon	--	2,467	6,056	6,689	242	15,454
Pennsylvania	307,339	68	21,550	16,593	24,947	370,497
Rhode Island	--	--	176	151	--	327
South Carolina	--	--	387	120	3	510
South Dakota	--	--	--	--	418	418
Tennessee	57,513	1,771	10,501	9,761	--	79,546
Texas	817	408	21,542	18,496	5,039	46,302
Utah	5,677	30,791	54	731	4,262	41,515
Vermont	27	--	852	2,022	1	2,902
Virginia	112,340	--	6,347	3,490	134	122,311
Washington	8,120	8,875	5,810	17,991	365	41,161
West Virginia	267,662	--	986	11,402	7,476	287,526
Wisconsin	--	--	3,775	1,137	1,186	6,098
Wyoming	273,184	1,231	1,118	1,448	4,356	281,337
Unallocated	2/	2/25	2/	2/	198,178	198,203
Total	2,758,659	437,217	479,873	302,273	378,836	4,356,858

1/Included with Maryland.
2/Some undistributed quantities are included in "All other purposes" to avoid disclosing company proprietary data.

TABLE 4.--Industrial explosives and blasting agents sold for consumption in the United States, by State and class, 1984
(Thousand pounds)

State	Class						
	Fixed high explosives		Blasting Agents				
	Permissibles	Other high explosives 1/	Water gels, slurries, and emulsions 1/	Ammonium nitrate-fuel oil blasting agents 1/	Unprocessed ammonium nitrate 2/	Higher strength blasting agents 1/	Total
Alabama	1,583	2,230	3,479	703	258,393	12	266,400
Alaska	--	1,875	3,955	--	13,290	51	19,171
Arizona	--	911	17,992	2,827	82,230	--	103,960
Arkansas	--	738	2,470	2,179	6,210	--	11,597
California	--	2,636	9,321	5,709	16,465	24	34,155
Colorado	277	953	8,460	3,633	68,194	1,188	82,705
Connecticut	1	1,186	3,950	1,460	2,258	21	8,876
Delaware	--	--	4	2	--	--	6
District of Columbia 3/	--	--	--	--	--	--	--
Florida	--	1,421	22,052	66	7,312	824	31,675
Georgia	--	1,029	9,189	2,091	7,737	590	20,636
Hawaii	--	32	361	440	--	--	833
Idaho	--	688	1,152	30	52,631	--	54,501
Illinois	126	3,120	10,887	2,798	122,662	1,551	141,144
Indiana	1	1,571	7,217	41,866	110,945	3,459	165,059
Iowa	171	2,067	7,188	654	27,218	66	37,364
Kansas	--	668	1,441	9,885	1,241	1,900	15,135
Kentucky	21,087	7,919	13,723	159,660	784,600	11,242	998,231
Louisiana	--	1,967	1,137	--	--	--	3,104
Maine	--	522	628	1,094	--	--	2,244
Maryland	6	941	4,700	269	990	183	7,089
Massachusetts	1	1,950	1,191	4,119	--	471	7,732
Michigan	--	757	16,121	6,008	16,305	1,134	40,325
Minnesota	--	369	17,565	8,944	46,259	169	73,306
Mississippi	--	1,642	307	20	--	--	1,969
Missouri	--	5,108	5,262	11,201	30,684	123	52,378
Montana	25	3,873	5,969	240	157,037	20	167,164
Nebraska	--	101	264	578	1,004	--	1,947
Nevada	2	255	1,083	5,472	60,413	--	67,225
New Hampshire	--	1,655	268	1,703	--	243	3,869
New Jersey	--	994	1,537	1,736	--	30	4,297
New Mexico	--	1,799	25,108	3,269	59,622	--	89,798
New York	22	3,121	4,853	4,836	1,554	97	14,483
North Carolina	--	1,639	15,686	4,132	30,639	438	52,534
North Dakota	--	222	--	--	100	--	322
Ohio	95	2,469	5,646	36,754	181,956	2,893	229,813
Oklahoma	--	1,363	6,512	23,649	18,154	2,026	51,704
Oregon	--	1,611	829	2,843	9,911	260	15,454
Pennsylvania	884	6,635	33,602	43,823	269,303	16,250	370,497
Rhode Island	--	141	48	138	--	--	327
South Carolina	--	274	119	8	--	109	510
South Dakota	--	20	--	--	398	--	418
Tennessee	1,156	7,480	5,311	25,148	37,561	2,890	79,546
Texas	--	5,345	3,571	9,230	26,837	1,319	46,302
Utah	134	4,479	9,755	2	27,137	8	41,515
Vermont	1	682	889	627	--	703	2,902
Virginia	9,045	3,680	3,765	39,379	65,512	930	122,311
Washington	--	2,242	2,161	82	36,676	--	41,161
West Virginia	4,620	3,465	2,427	65,820	209,299	1,895	287,526
Wisconsin	1	649	1,260	--	4,179	9	6,098
Wyoming	--	1,752	34,343	8,527	226,587	10,128	281,337
Undistributed	--	--	--	--	198,178	25	198,203
Total	39,238	98,246	334,758	543,654	3,277,681	63,281	4,356,858

1/Some quantities of this class of explosives are included with "Unprocessed ammonium nitrate" to avoid disclosing company proprietary data.

2/Includes some quantities of other high explosives, water gels and slurries, ammonium nitrate-fuel oil blasting agents, and higher strength blasting agents.

3/ Included with Maryland.

TABLE 5.--Permissible explosives sold for consumption in the United States, by State and use, 1984
(Thousand pounds)

State	Use					
	Coal mining	Metal mining	Quarrying and nonmetal mining	Construction work	All other purposes	Total
Alabama	1,453	--	29	101	--	1,583
Alaska	--	--	--	--	--	--
Arizona	--	--	--	--	--	--
Arkansas	--	--	--	--	--	--
California	--	--	--	--	--	--
Colorado	252	--	--	--	25	277
Connecticut	--	--	--	1	--	1
Delaware	--	--	--	--	--	--
District of Columbia 1/	--	--	--	--	--	--
Florida	--	--	--	--	--	--
Georgia	--	--	--	--	--	--
Hawaii	--	--	--	--	--	--
Idaho	--	--	--	--	--	--
Illinois	126	--	--	--	--	126
Indiana	--	--	--	1	--	1
Iowa	170	--	1	--	--	171
Kansas	--	--	--	--	--	--
Kentucky	21,078	--	5	--	4	21,087
Louisiana	--	--	--	--	--	--
Maine	--	--	--	--	--	--
Maryland	5	--	1	--	--	6
Massachusetts	--	--	1	--	--	1
Michigan	--	--	--	--	--	--
Minnesota	--	--	--	--	--	--
Mississippi	--	--	--	--	--	--
Missouri	--	--	--	--	--	--
Montana	--	--	--	11	14	25
Nebraska	--	--	--	--	--	--
Nevada	--	--	--	--	2	2
New Hampshire	--	--	--	--	--	--
New Jersey	--	--	--	--	--	--
New Mexico	--	--	--	--	--	--
New York	--	--	--	22	--	22
North Carolina	--	--	--	--	--	--
North Dakota	--	--	--	--	--	--
Ohio	41	--	52	2	--	95
Oklahoma	--	--	--	--	--	--
Oregon	--	--	--	--	--	--
Pennsylvania	709	10	41	124	--	884
Rhode Island	--	--	--	--	--	--
South Carolina	--	--	--	--	--	--
South Dakota	--	--	--	--	--	--
Tennessee	269	154	215	518	--	1,156
Texas	--	--	--	--	--	--
Utah	--	31	--	74	29	134
Vermont	--	--	--	--	1	1
Virginia	9,045	--	--	--	--	9,045
Washington	--	--	--	--	--	--
West Virginia	4,573	--	--	47	--	4,620
Wisconsin	--	--	--	1	--	1
Wyoming	--	--	--	--	--	--
Total	37,721	195	345	902	75	39,238

1/Included with Maryland.

TABLE 6.--Other high explosives sold for consumption in the United States, by State and use, 1984 1/
(Thousand pounds)

State	Use					
	Coal mining	Metal mining	Quarrying and nonmetal mining	Construction work	All other purposes	Total
Alabama	734	1	258	525	712	2,230
Alaska	--	--	--	1,368	507	1,875
Arizona	192	693	3	12	11	911
Arkansas	17	6	249	361	105	738
California	7	27	413	2,083	106	2,636
Colorado	255	503	--	11	184	953
Connecticut	--	--	908	181	97	1,186
Delaware	--	--	--	--	--	--
District of Columbia 2/	--	--	--	--	--	--
Florida	--	--	753	598	70	1,421
Georgia	--	--	991	18	20	1,029
Hawaii	--	--	1	31	--	32
Idaho	2	164	--	521	1	688
Illinois	786	23	2,015	295	1	3,120
Indiana	916	--	456	80	119	1,571
Iowa	17	--	2,025	4	21	2,067
Kansas	74	--	208	23	363	668
Kentucky	6,241	--	639	763	276	7,919
Louisiana	--	--	19	1	1,947	1,967
Maine	--	--	166	356	--	522
Maryland	42	--	895	--	4	941
Massachusetts	--	--	1,654	293	3	1,950
Michigan	--	200	399	46	112	757
Minnesota	3	106	251	9	--	369
Mississippi	--	--	5	47	1,590	1,642
Missouri	11	603	3,630	845	19	5,108
Montana	212	500	309	69	2,783	3,873
Nebraska	--	--	--	101	--	101
Nevada	5	216	15	2	17	255
New Hampshire	--	--	1,007	648	--	1,655
New Jersey	--	--	694	121	179	994
New Mexico	230	570	--	596	403	1,799
New York	35	345	1,059	1,224	458	3,121
North Carolina	653	--	439	547	--	1,639
North Dakota	--	--	--	--	222	222
Ohio	800	--	1,383	226	60	2,469
Oklahoma	87	--	110	86	1,080	1,363
Oregon	--	--	909	633	69	1,611
Pennsylvania	2,836	--	2,379	1,126	294	6,635
Rhode Island	--	--	66	75	--	141
South Carolina	--	--	174	97	3	274
South Dakota	--	--	--	--	20	20
Tennessee	674	971	2,429	3,406	--	7,480
Texas	21	35	263	1,961	3,065	5,345
Utah	406	2,616	54	349	1,054	4,479
Vermont	7	--	140	535	--	682
Virginia	1,304	--	1,861	489	26	3,680
Washington	162	192	345	1,513	30	2,242
West Virginia	3,137	--	30	295	3	3,465
Wisconsin	--	--	45	604	--	649
Wyoming	491	--	9	15	1,237	1,752
Total	20,357	7,771	29,658	23,189	17,271	98,246

1/Some quantities of other high explosives are included with "Unprocessed ammonium nitrate" to avoid disclosing company proprietary data.
2/Included with Maryland.

TABLE 7.--Packaged and bulk water gels, slurries, and emulsions sold for consumption in the United States, by State and use, 1984 1/
(Thousand pounds)

State	Use					
	Coal mining	Metal mining	Quarrying and nonmetal mining	Construction work	All other purposes	Total
Alabama	1,106	--	1,251	721	401	3,479
Alaska	--	--	64	3,891	--	3,955
Arizona	162	16,628	14	81	1,107	17,992
Arkansas	--	--	1,709	761	--	2,470
California	--	1	5,503	3,801	16	9,321
Colorado	3,136	3,849	618	120	737	8,460
Connecticut	--	--	2,651	1,080	219	3,950
Delaware	--	--	--	3	1	4
District of Columbia 2/	--	--	--	--	--	--
Florida	--	--	18,061	3,991	--	22,052
Georgia	--	--	5,940	2,503	746	9,189
Hawaii	--	--	113	248	--	361
Idaho	--	1,060	8	84	--	1,152
Illinois	4,223	--	5,498	1,086	80	10,887
Indiana	4,311	--	1,854	492	560	7,217
Iowa	209	--	6,888	91	--	7,188
Kansas	40	--	1,189	198	14	1,441
Kentucky	10,244	--	2,232	693	554	13,723
Louisiana	--	--	414	199	524	1,137
Maine	--	--	140	488	--	628
Maryland	360	--	3,803	349	188	4,700
Massachusetts	--	--	466	493	232	1,191
Michigan	--	14,780	1,269	72	--	16,121
Minnesota	--	16,395	1,065	103	2	17,565
Mississippi	--	--	40	41	226	307
Missouri	--	216	3,423	1,409	214	5,262
Montana	--	3,705	--	1,487	777	5,969
Nebraska	--	--	--	264	--	264
Nevada	--	401	492	36	154	1,083
New Hampshire	--	--	44	224	--	268
New Jersey	--	24	1,382	131	--	1,537
New Mexico	11,203	12,973	2	851	79	25,108
New York	--	--	3,210	1,625	18	4,853
North Carolina	336	--	14,378	972	--	15,686
North Dakota	--	--	--	--	--	--
Ohio	2,012	--	3,262	242	130	5,646
Oklahoma	264	--	2,458	3,525	265	6,512
Oregon	--	--	206	589	34	829
Pennsylvania	23,624	58	6,476	3,195	249	33,602
Rhode Island	--	--	26	22	--	48
South Carolina	--	--	104	15	--	119
South Dakota	--	--	--	--	--	--
Tennessee	2,296	530	1,851	634	--	5,311
Texas	--	3	1,651	1,669	248	3,571
Utah	11	8,107	--	308	1,329	9,755
Vermont	--	--	496	393	--	889
Virginia	1,630	--	1,423	604	108	3,765
Washington	--	83	298	1,457	323	2,161
West Virginia	1,499	--	81	649	198	2,427
Wisconsin	--	--	737	523	--	1,260
Wyoming	32,674	146	59	51	1,413	34,343
Total	99,340	78,959	102,849	42,464	11,146	334,758

1/ Some quantities of packaged and bulk water gels, slurries, and emulsions are included with "Unprocessed ammonium nitrate" to avoid disclosing company proprietary data.
2/ Included with Maryland.

TABLE 8.--Ammonium nitrate-fuel oil blasting agents sold for consumption in the United States, by State and use, 1984 1/
(Thousand pounds)

State	Use					
	Coal mining	Metal mining	Quarrying and nonmetal mining	Construction work	All other purposes	Total
Alabama	444	--	202	57	--	703
Alaska	--	--	--	--	--	--
Arizona	--	2,333	386	80	28	2,827
Arkansas	16	--	1,468	695	--	2,179
California	--	15	3,148	2,530	16	5,709
Colorado	983	2,649	--	--	1	3,633
Connecticut	--	--	1,353	107	--	1,460
Delaware	--	--	--	2	--	2
District of Columbia 2/	--	--	--	--	--	--
Florida	--	--	15	51	--	66
Georgia	--	--	2,053	38	--	2,091
Hawaii	--	--	440	--	--	440
Idaho	--	30	--	--	--	30
Illinois	1,694	--	897	167	40	2,798
Indiana	35,723	--	4,441	1,702	--	41,866
Iowa	--	--	654	--	--	654
Kansas	--	--	8,990	887	8	9,885
Kentucky	139,274	--	9,274	11,112	--	159,660
Louisiana	--	--	--	--	--	--
Maine	--	--	477	617	--	1,094
Maryland	10	--	259	--	--	269
Massachusetts	--	--	3,260	859	--	4,119
Michigan	--	212	5,717	79	--	6,008
Minnesota	--	8,585	359	--	--	8,944
Mississippi	--	--	20	--	--	20
Missouri	166	--	7,806	3,212	17	11,201
Montana	200	--	--	--	40	240
Nebraska	--	--	--	578	--	578
Nevada	--	2,230	2,874	339	29	5,472
New Hampshire	--	--	353	850	--	1,703
New Jersey	--	--	1,325	402	9	1,736
New Mexico	--	2,717	--	214	338	3,269
New York	--	236	2,757	1,643	200	4,836
North Carolina	--	--	2,244	1,888	--	4,132
North Dakota	--	--	--	--	--	--
Ohio	31,065	--	5,094	595	--	36,754
Oklahoma	277	5,483	2,442	15,447	--	23,649
Oregon	--	--	1,865	841	137	2,843
Pennsylvania	32,717	--	9,520	1,097	489	43,823
Rhode Island	--	--	84	54	--	138
South Carolina	--	--	--	8	--	8
South Dakota	--	--	--	--	--	--
Tennessee	16,008	--	4,860	4,280	--	25,148
Texas	--	370	5,677	1,457	1,726	9,230
Utah	--	--	--	--	2	2
Vermont	20	--	203	404	--	627
Virginia	36,089	--	1,634	1,656	--	39,379
Washington	--	--	33	39	10	82
West Virginia	60,266	--	428	5,126	--	55,820
Wisconsin	--	--	--	--	--	--
Wyoming	7,723	--	183	616	5	8,527
Total	362,675	24,860	93,295	59,729	3,095	543,654

1/Some quantities of ammonium nitrate-fuel oil blasting agents are included with "Unprocessed ammonium nitrate" to avoid disclosing company proprietary data.
2/Included with Maryland.

TABLE 9.--Unprocessed ammonium nitrate sold for consumption in the United States, by State and use, 1984 1/
(Thousand pounds)

State	Use					
	Coal mining	Metal mining	Quarrying and nonmetal mining	Construction work	All other purposes	Total
Alabama	241,000	--	1,005	16,388	--	258,393
Alaska	9,835	--	1,512	1,943	--	13,290
Arizona	25,274	54,354	652	294	1,656	82,230
Arkansas	--	--	3,530	2,680	--	6,210
California	--	2,834	703	12,928	--	16,465
Colorado	44,017	12,085	6,946	5,146	--	68,194
Connecticut	--	--	1,141	1,117	--	2,258
Delaware	--	--	--	--	--	--
District of Columbia 2/	--	--	--	--	--	--
Florida	344	--	2,924	4,044	--	7,312
Georgia	--	--	7,737	--	--	7,737
Hawaii	--	--	--	--	--	--
Idaho	4,360	37,612	8,664	1,995	--	52,631
Illinois	23,532	--	78,376	12,882	7,872	122,662
Indiana	101,497	--	96	9,352	--	110,945
Iowa	11,127	--	6,673	128	9,290	27,218
Kansas	--	--	47	--	1,194	1,241
Kentucky	673,821	--	33,521	29,506	47,752	784,600
Louisiana	--	--	--	--	--	--
Maine	--	--	--	--	--	--
Maryland	228	--	--	762	--	990
Massachusetts	--	--	--	--	--	--
Michigan	--	9,311	89	145	6,760	16,305
Minnesota	--	41,864	898	271	3,226	46,259
Mississippi	--	--	--	--	--	--
Missouri	19,972	2,000	2,438	3,578	2,696	30,684
Montana	90,718	63,269	2,330	720	--	157,037
Nebraska	--	--	--	1,004	--	1,004
Nevada	--	54,240	6,001	172	--	60,413
New Hampshire	--	--	--	--	--	--
New Jersey	--	--	--	--	--	--
New Mexico	44,671	13,951	500	500	--	59,622
New York	--	--	1,326	228	--	1,554
North Carolina	7,800	--	22,837	2	--	30,639
North Dakota	--	--	--	--	100	100
Ohio	130,536	--	15,034	4,260	32,126	181,956
Oklahoma	--	--	8,382	9,772	--	18,154
Oregon	--	2,467	2,917	4,527	--	9,911
Pennsylvania	234,170	--	861	10,357	23,915	269,303
Rhode Island	--	--	--	--	--	--
South Carolina	--	--	--	--	--	--
South Dakota	--	--	--	--	398	398
Tennessee	36,221	116	499	725	--	37,561
Texas	796	--	12,976	13,065	--	26,837
Utah	5,260	20,029	--	--	1,848	27,137
Vermont	--	--	--	--	--	--
Virginia	63,433	--	1,347	732	--	65,512
Washington	7,958	8,600	5,134	14,982	2	36,676
West Virginia	196,478	--	447	5,144	7,230	209,299
Wisconsin	--	--	2,993	--	1,186	4,179
Wyoming	222,168	1,085	867	766	1,701	226,587
Undistributed 3/	4/	4/	4/	4/	198,178	198,178
Total	2,195,216	323,817	241,403	170,115	347,130	3,277,681

1/Includes some quantities of other high explosives, packaged and bulk water gels, slurries, and emulsions, ammonium nitrate-fuel oil blasting agents, and higher strength blasting agents.

2/ Included with Maryland.

3/ Quantities undistributed to avoid disclosing company proprietary data.

4/ Undistributed quantity for this use is included with undistributed "All other purposes."

TABLE 10.--Higher strength blasting agents sold for consumption in the United States, by State and use, 1984 1/
(Thousand pounds)

State	Use					
	Coal mining	Metal mining	Quarrying and nonmetal mining	Construction work	All other purposes	Total
Alabama	--	--	12	--	--	12
Alaska	--	--	--	51	--	51
Arizona	--	--	--	--	--	--
Arkansas	--	--	--	--	--	--
California	--	--	24	--	--	24
Colorado	--	1,188	--	--	--	1,188
Connecticut	--	--	11	10	--	21
Delaware	--	--	--	--	--	--
District of Columbia 2/	--	--	--	--	--	--
Florida	--	--	56	768	--	824
Georgia	--	--	590	--	--	590
Hawaii	--	--	--	--	--	--
Idaho	--	--	--	--	--	--
Illinois	1,050	--	413	88	--	1,551
Indiana	2,338	--	897	224	--	3,459
Iowa	--	--	66	--	--	66
Kansas	--	--	1,899	1	--	1,900
Kentucky	9,999	--	782	461	--	11,242
Louisiana	--	--	--	--	--	--
Maine	--	--	--	--	--	--
Maryland	--	--	141	10	32	183
Massachusetts	--	--	467	4	--	471
Michigan	--	225	909	--	--	1,134
Minnesota	--	169	--	--	--	169
Mississippi	--	--	--	--	--	--
Missouri	--	--	79	44	--	123
Montana	--	--	--	20	--	20
Nebraska	--	--	--	--	--	--
Nevada	--	--	--	--	--	--
New Hampshire	--	--	39	204	--	243
New Jersey	--	--	--	--	30	30
New Mexico	--	--	--	--	--	--
New York	--	--	97	--	--	97
North Carolina	--	--	397	41	--	438
North Dakota	--	--	--	--	--	--
Ohio	1,674	--	1,026	183	10	2,893
Oklahoma	285	--	160	1,581	--	2,026
Oregon	--	--	159	99	2	260
Pennsylvania	13,283	--	2,273	694	--	16,250
Rhode Island	--	--	--	--	--	--
South Carolina	--	--	109	--	--	109
South Dakota	--	--	--	--	--	--
Tennessee	2,045	--	647	198	--	2,890
Texas	--	--	975	344	--	1,319
Utah	--	8	--	--	--	8
Vermont	--	--	13	690	--	703
Virginia	839	--	82	9	--	930
Washington	--	--	--	--	--	--
West Virginia	1,709	--	--	141	45	1,895
Wisconsin	--	--	--	9	--	9
Wyoming	10,128	--	--	--	--	10,128
Unallocated 3/	--	25	--	--	--	25
Total	43,350	1,615	12,323	5,874	119	63,281

1/Some quantities of higher strength blasting agents are included with "Unprocessed ammonium nitrate" to avoid disclosing company proprietary data.

2/ Included with Maryland.

3/ Some quantities unallocated to avoid disclosing company proprietary data.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
4800 FORBES AVENUE
PITTSBURGH, PENNSYLVANIA 15213

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

☐ Do not wish to receive this material, please remove from your mailing list.

☐ Address change. Please correct as indicated.

AN EQUAL OPPORTUNITY EMPLOYER

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF THE INTERIOR
INT-418

FIRST CLASS

U S GOVERNMENT PRINTING OFFICE
LIBRARY
PUBLIC DOCUMENTS DEPT
WASHINGTON DC 20402
MMS

BEST COPY AVAILABLE